Filed: 02/19/04; File No. NCR 11187 and 11490 Inventor: Ahmad Said Ghazal For: Processing Database Queries Contact: John D. Cowart/858-485-4903 Sheet 1 of 19 Nodes 105_{2.0} 100 PROCESSING MODULE **ROW Z** 135 140 MAINFRAME CLIENT SYSTEM 115 1103 130 125_{3} PROCESSING MODULE ROW 3 PARSING ENGINE 110₂ 125_{2} NETWORK PROCESSING MODULE **ROW 2** 120, 125_{1} FIG. 1 PROCESSING MODULE ROW Node 105_{1}

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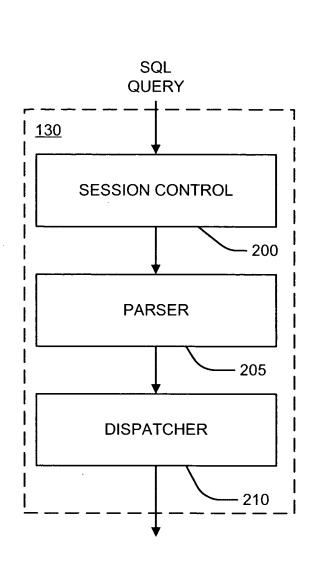


FIG. 2

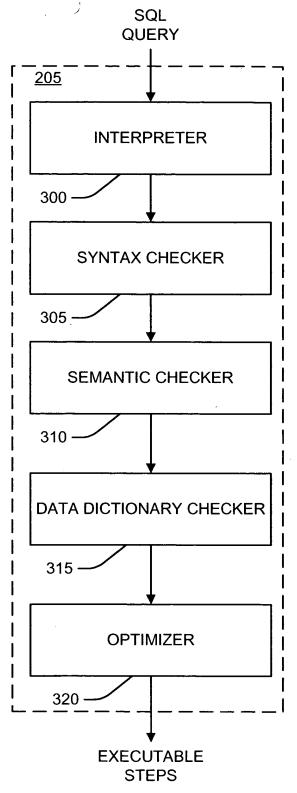


FIG. 3

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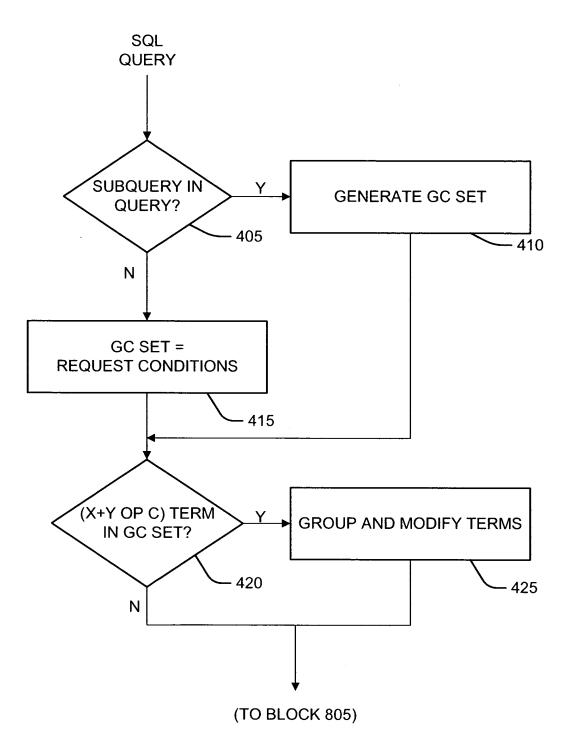
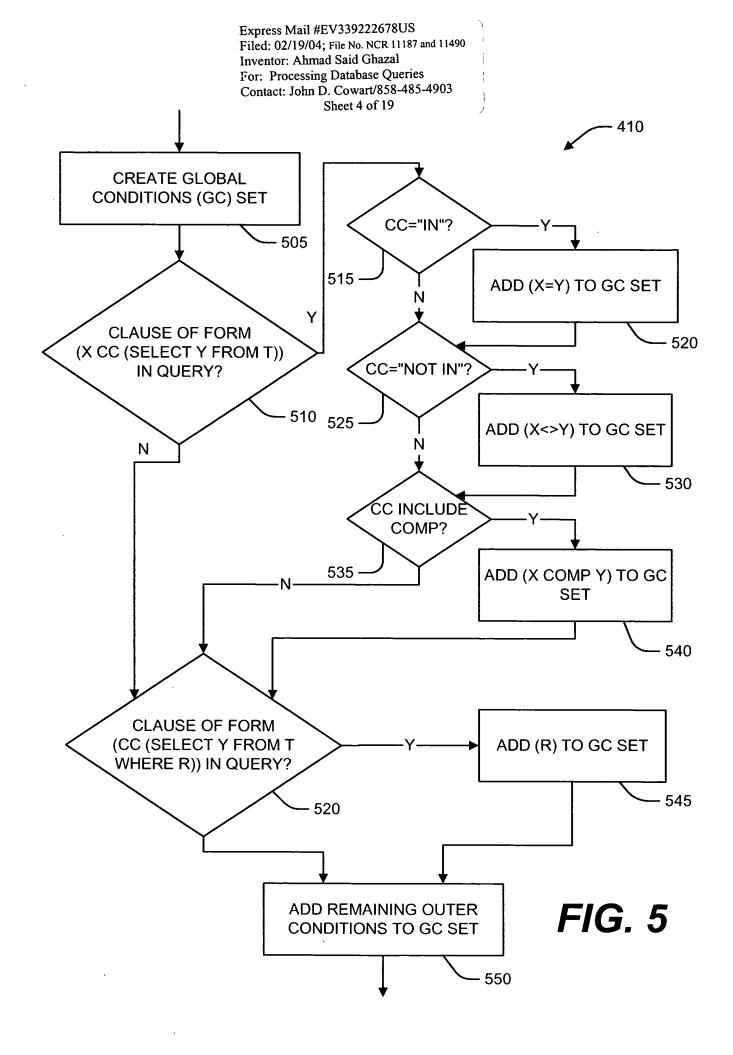


FIG. 4



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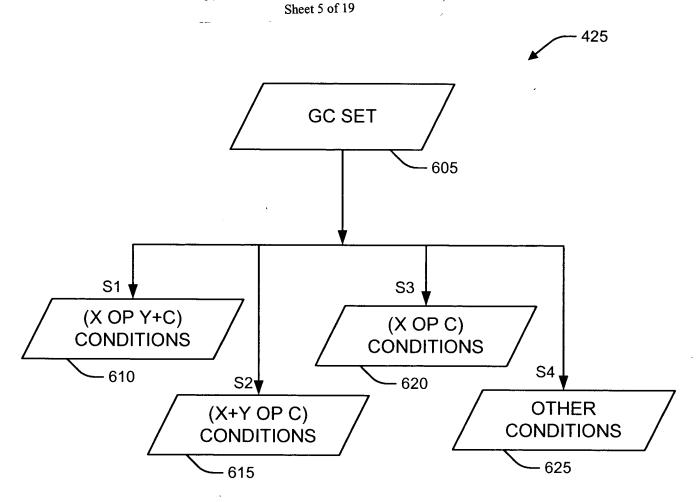
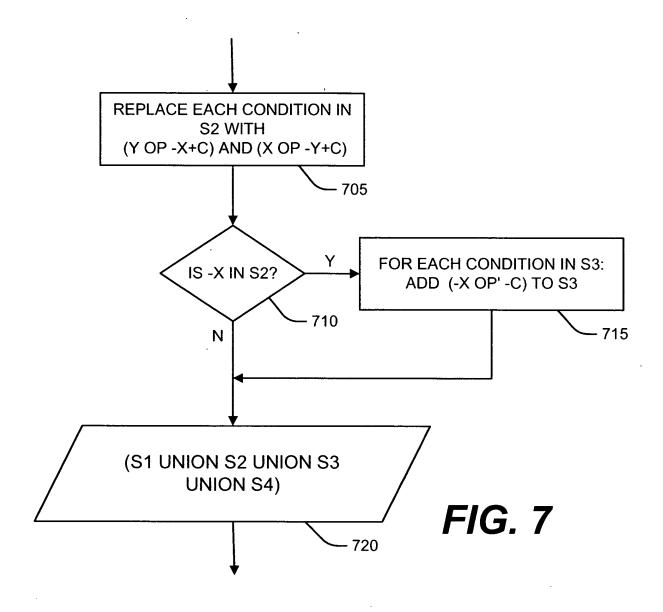


FIG. 6

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Express Mail #EV339222678US Filed: 02/19/04; File No. NCR 11187 and 11490 Inventor: Ahmad Said Ghazal For: Processing Database Queries Contact: John D. Cowart/858-485-4903 Sheet 7 of 19 805 PERFORM INTEGER **CONVERSIONS** 810 PERFORM REAL-DOMAIN **CONVERSIONS** 815 CREATE WEIGHT GRAPH, M 820 FIND THE SHORTEST PATH BETWEEN ALL NODES IN M 830 825 NEG. COST **RETURN FALSE** SELF EDGE? 835 NORMALIZE <> **COMPARISONS** 845 840 CONFLICT **RETURN FALSE** CONSTS? 850 FIG. 8 **RETURN TRUE**

Inventor: Ahmad Said Ghazal For: Processing Database Queries Contact: John D. Cowart/858-485-4903 Sheet 8 of 19 - 805 905 (X < Y + C) TO (X <= Y + (C-1))910 (X>Y+C) TO (Y<=X+(-C-1))915 (X=Y+C) TO (X<=Y+C) AND $(Y \le X + (-C))$ 920 $(X \le C) TO (X \le 0 + C)$ 925 (X<C) TO (X<=0+(C-1))930 (X>=C) TO (0<=X+(-C))935 (X>C) TO (0<=X+(-C-1)) 940 (X=C) TO (X<=0+C) AND $(0 \le X + (-C))$ 945

NO CONVERT FOR (X<=Y+C)

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FIG. 9

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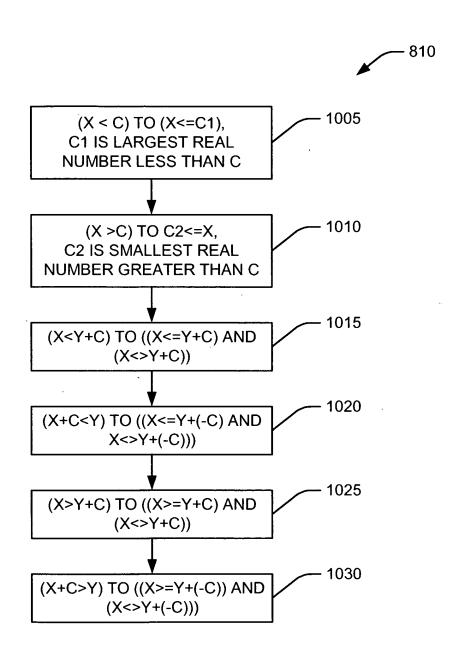


FIG. 10

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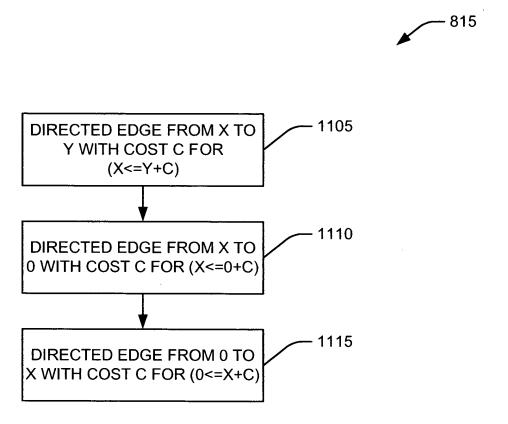


FIG. 11

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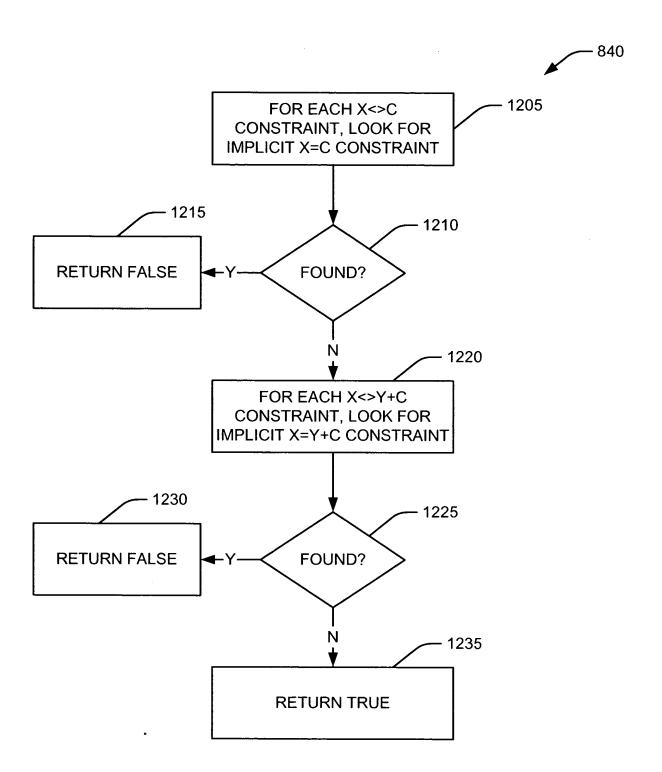


FIG. 12

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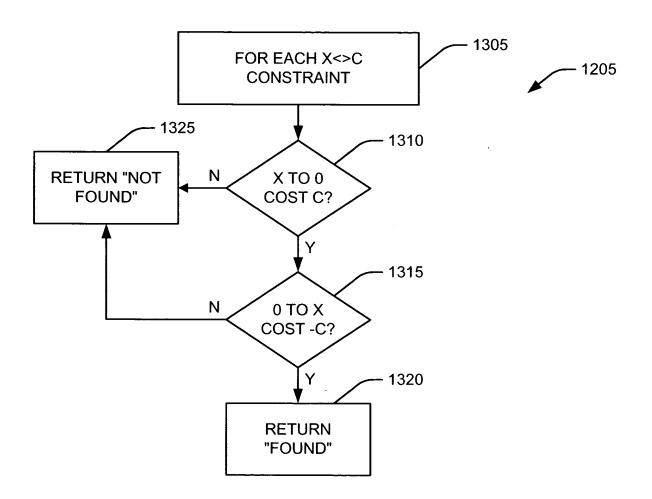


FIG. 13

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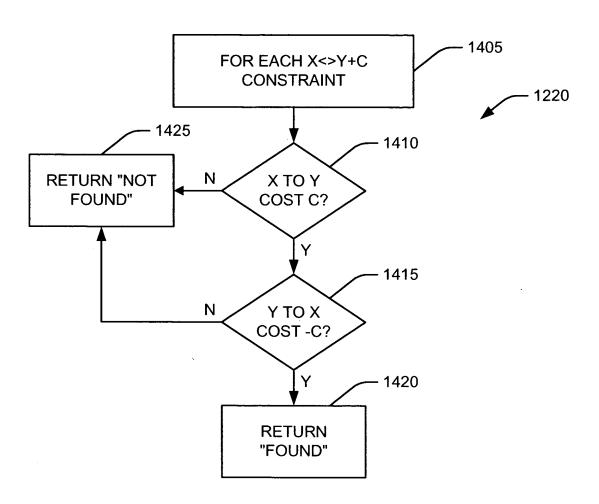
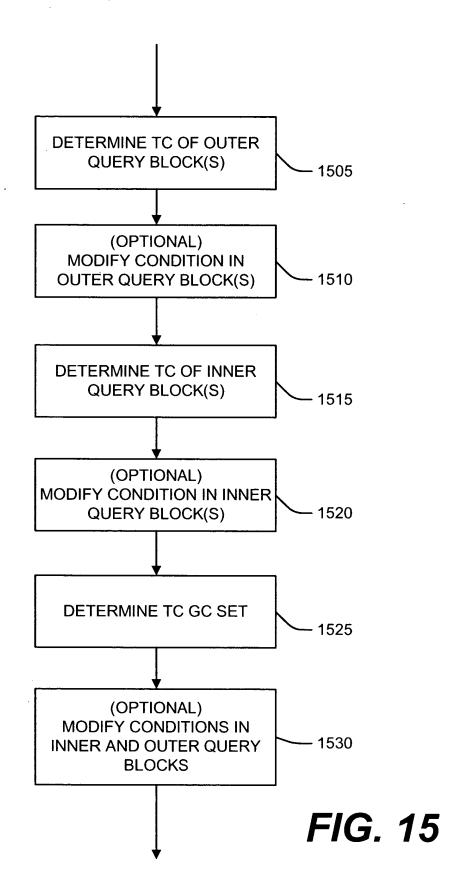


FIG. 14

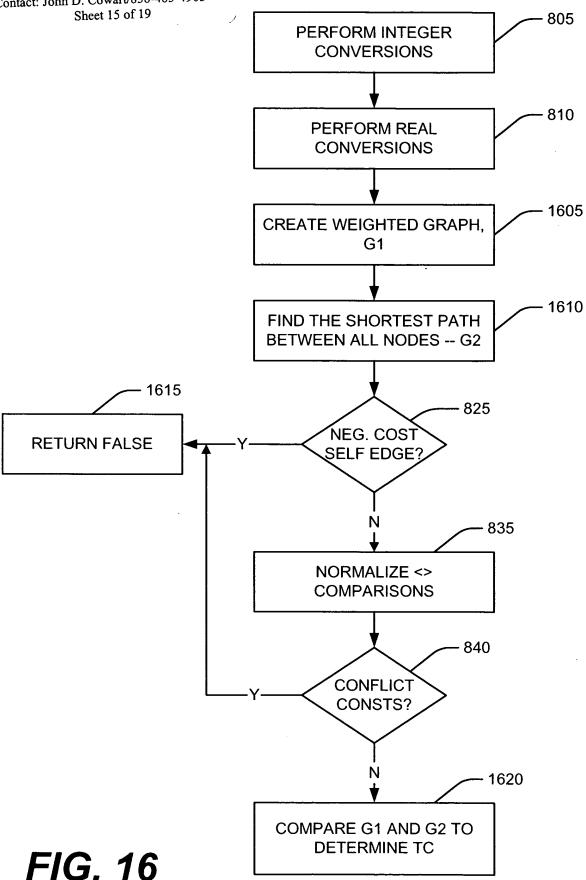
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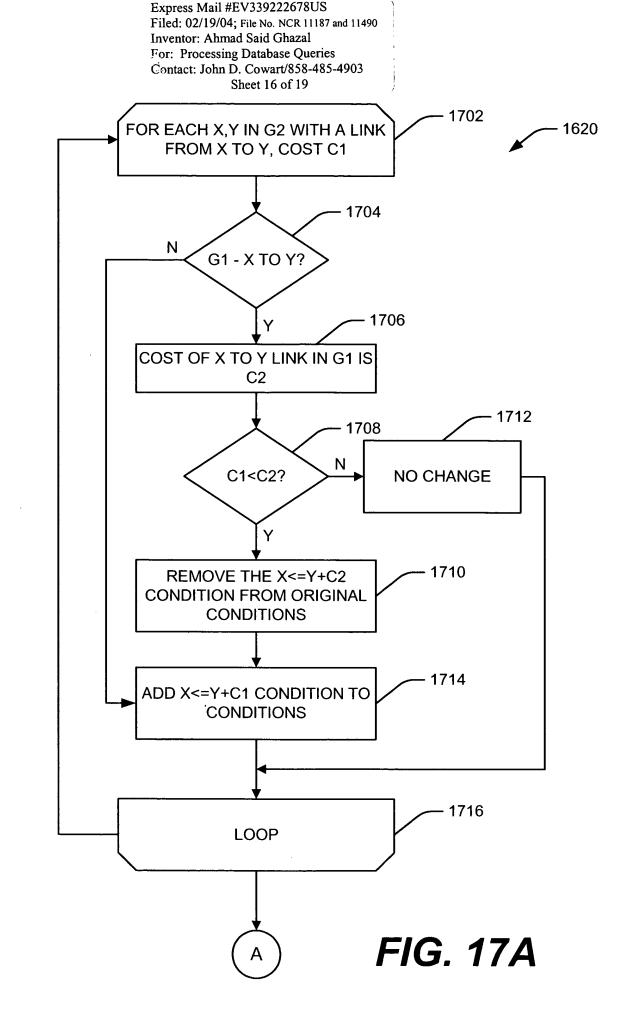
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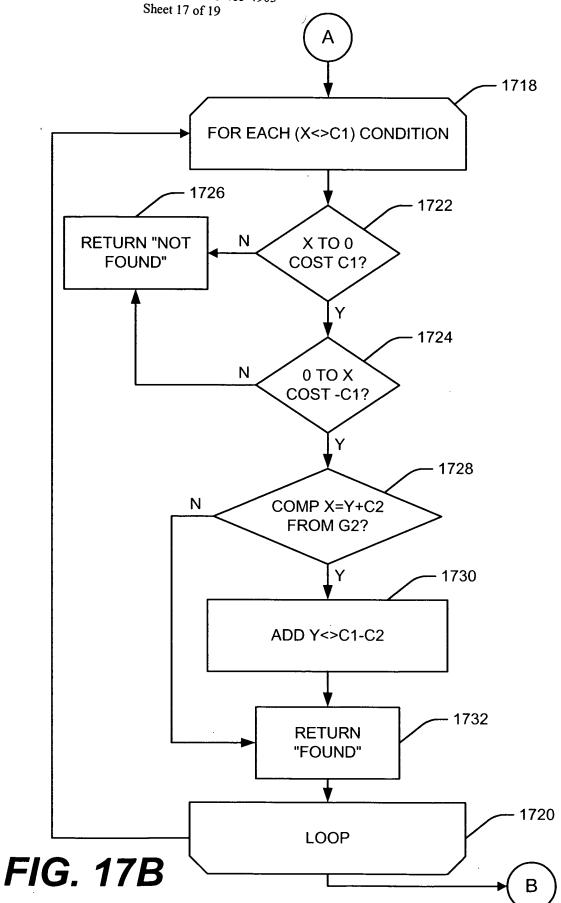


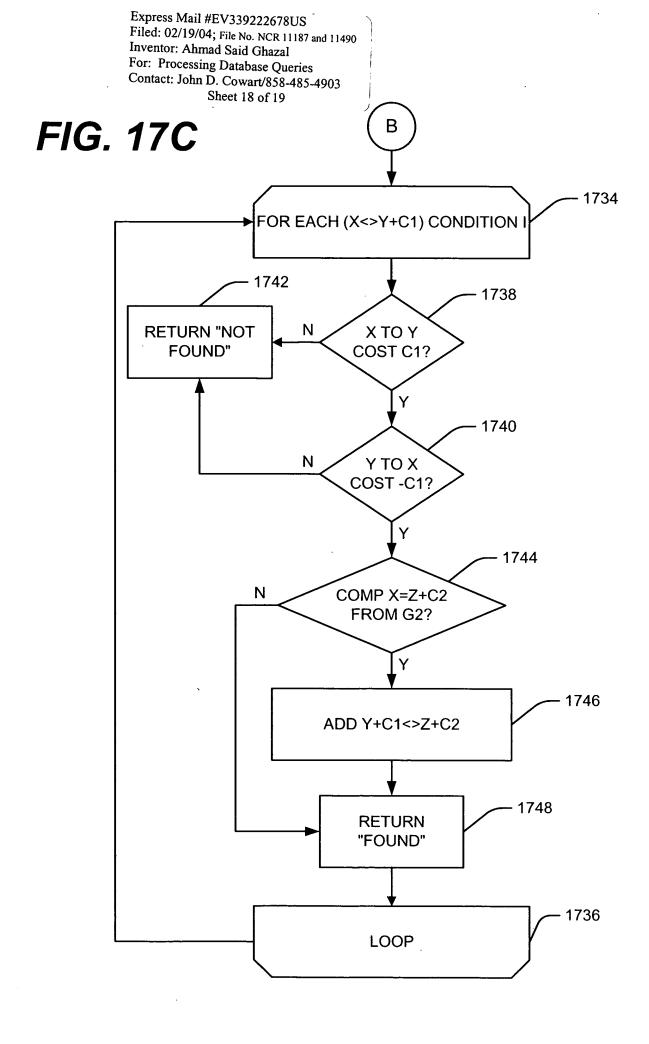
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